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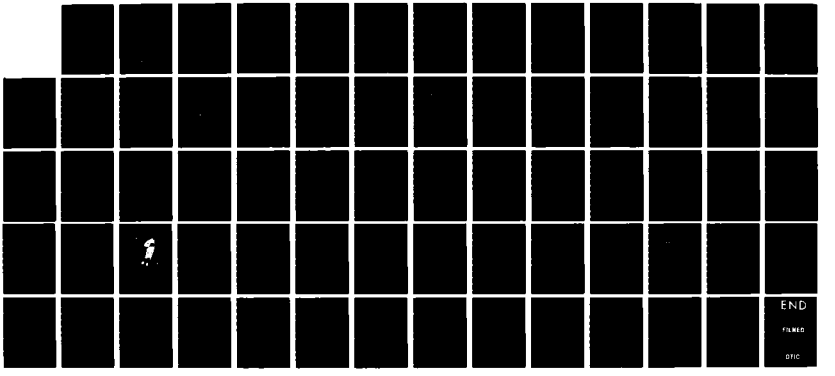

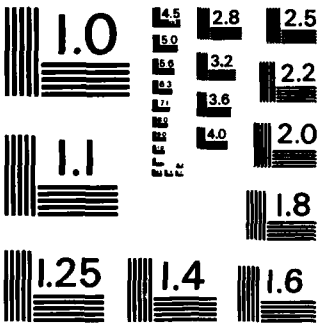

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April 1, 1985

An Archeological Overview and Management Plan for the St. Louis Area Support Center, Madison County, Illinois

Under Contract CX-5000-3-0771
with the

National Park Service
U.S. Department of Interior
Atlanta, Georgia 30303

for the
U.S. Army Materiel Development and Readiness Command

by

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16. Abstract (Limit: 200 words)

The St. Louis Area Support Center (ASC) is a 895-acre facility located in Madison County, Illinois, on the American Bottom floodplain at the confluence of the Mississippi River and the Chain of Rocks Canal. No previous archeological investigations have been conducted on the St. Louis ASC and no archeological sites are presently known to exist within facility lands, although parts of the levee system may be of historic value. Given the known archeological resource base for the area it is possible that either prehistoric or historic sites may occur within the ASC. However, there has been extensive surficial modification of the facility, either as filling or cutting. Significant intact deposits may still be preserved beneath construction and fill areas as well as in relatively unmodified areas. Construction of a new 280-acre tank driving range has already been initiated and involves no sub-surface construction, but surficial impact will occur. An archival review and archeological field survey of 237 acres of undisturbed land within this project parcel is recommended. If any other construction does occur, proposed impact areas will need further review of any archeological materials and their mitigation needs. An outline of recommended work and a cost estimate are presented.

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Army Installation Management
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reference: Thesaurus of Engineering and Scientific Terms

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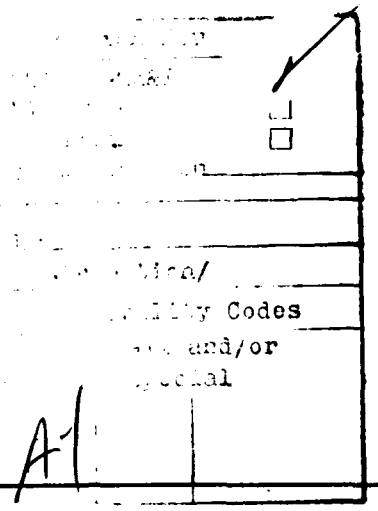

MANAGEMENT SUMMARY

The St. Louis Area Support Center (ASC) is a facility of the U. S. Department of the Army DARCOM (Materiel Development and Readiness Command), with responsibilities for the management of the prehistoric and historic archeological resources that are retained within installation lands. This report summarizes the archeological resources, the culture history of the area that provides a context for the interpretation and evaluation of those resources, assesses the total archeological resource base likely to be found on installation lands, and makes recommendations for the future management of those resources within the overall context of DARCOM missions and public responsibilities.

Compliance with the National Historic Preservation act, the Archeological and Historic Preservation Act, 36 CFR 800, and Army Regulation 420-40 requires the identification, evaluation, and where feasible affirmative management of significant archeological resources. These also require that federal undertakings (e.g., new construction, new leases, or lease renewals of public lands) take into consideration the effects of their proposed activities on these significant materials.

No previous archeological investigations have been conducted on the St. Louis ASC and no sites are known to exist on facility lands though parts of the levee system may be of historic value. Given the known archeological resource base for the area it is possible that either prehistoric or historic sites may occur within the facility. However, there has been extensive surficial modification of the facility, either as filling or cutting. Significant intact deposits may still be preserved beneath construction and fill areas as well as in relatively

unmodified areas. Construction of a new 280-acre tank driving range has already been initiated and involves no sub-surface construction, but surficial impact will occur. An archival review and archeological field survey of 237 acres of undisturbed land within this parcel is recommended. If any other construction does occur, proposed impact areas will need further review of any archeological materials and their mitigation needs.

PREPARERS AND QUALIFICATIONS

Barbara D. Stafford is the principal author of this report. She holds a BS summa cum laude in Sociology (minors in Anthropology and Psychology), and an MA and PhD in Anthropology. She has participated in archeological investigations across the United States and in Europe. Presently, she is a Research Archeologist with the Center for American Archeology, serving as a Principal Investigator.

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ACKNOWLEDGEMENTS

A number of people have been extremely generous with their time and effort in the preparation of this management report. Among these are Mr. Alan Brandt at the St. Louis Area Support Center, and Mr. James Batura and Ms. Frieda Vereecken-Odell of the Center for American Archeology. Ms. Ruth Sperry, Ms. Ruth Kissell, and Ms. Beverly Sexauer typed and edited the manuscript.

Additional thanks go to Dr. Mark R. Barnes, NPS, SERO; Mr. Jack Rudy, NPS, RMRO; and the Illinois State Historic Preservation Officer, who reviewed the first draft of this report; and to Ms. Susan Cleveland, Contracting Officer, NPS, SERO.

Final report production, including graphics, has been completed by Woodward-Clyde Consultants, with editorial review (particularly of management recommendations) and text preparation completed by Dr. Ruthann Knudson and Ms. Betty Schmucker.

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replaced by grasses and herbs. However, after 5000 years BP, pollen percentages at Old Field indicate renewed development of arboreal vegetation in the bottomlands.

2.2 THE CULTURAL ENVIRONMENT

An overview of the cultural chronology of the St. Louis Area Support Center and surrounding region, within a radius of approximately 100 miles (160 km), is presented in Table 2-1. This discussion is brief because modern disturbance has probably eliminated most surface evidence of archeological features on the ASC. However, subsurface cultural deposits may be present beneath the ground disturbance areas. Sites dating from the Paleo-Indian to protohistoric and historic Indian groups have been recorded within this portion of Illinois, as have historic sites from the nineteenth and early twentieth centuries.

2.2.1 Prehistory

The St. Louis ASC is located within the American Bottom portion of the Mississippi River Valley in southwestern Illinois. Four prehistoric traditions are recognized in this area: Paleo-Indian, Archaic, Woodland, and Mississippian. Prehistoric site types are varied and range from single activity loci to large village sites and towns to mortuary areas.

The earliest inhabitants of the St. Louis area were Paleo-Indian hunters and gatherers who are generally assumed to have focused their subsistence system on big game hunting. Population density appears to have been extremely low at this time (10,000 to 8000 BC). Possible Paleo-Indian finds on the facility are unlikely, given the dynamic floodplain/riverside environment that has undoubtedly prevailed throughout the Holocene; most of the Paleo-Indian materials in American Bottom have been found in the upland areas to the east (Benchley 1975). If Paleo-Indian materials were present on the ASC, they would likely be limited to isolated artifacts (probably representing hunting losses) and not archeological sites with depositional integrity and National Register-eligible scientific value.

(after 1000 AD), squirrel, raccoon, beaver, groundhog, opossum, and skunk; reptiles; shellfish; and several species of fish. The location of the facility in the American Bottom, a major waterfowl flyway, affords a large number of migratory birds seasonally available, and also provides niches for several permanent species (Emerson and McElrath 1983:224).

2.1.6 Paleoenvironment

Data for reconstructing the paleoenvironment of the region prior to 16,500 BP is based on pollen cores from the western Ozarks (King 1975). The vegetation type of the mid-Wisconsinan interstade from 40,000 BP to about 25,000 BP was open pine-parkland. At the onset of the late Wisconsinan full glacial period (20,000-16,500 BP) the vegetation type shifted from pine dominated forest to spruce boreal forest. At the end of this same period there was a decrease in spruce pollen and an increase in thermophilous deciduous tree pollen. The pollen record at Chatsworth Bog in east-central Illinois (King 1981) dates the decline of spruce pollen after 13,800 BP, as temperatures slowly increased and black ash expanded onto wet lowlands. Continued warming temperatures from 11,600 to 10,600 BP allowed the development of other temperate deciduous species with oak, hickory, and maple on the uplands and birch, alder, elm, and ash on the lower, wetter areas. By 10,600 BP to 8300 BP further warming and drying effected the complete transition to oak-dominated deciduous forest, with accompanying increases in elm, ironwood, oak, and hickory. The forest cover in the lowlands persisted until present, but an increase in herbaceous pollen about 8300 BP is interpreted as an expansion of prairie species into the drier uplands in Illinois.

Pollen records from Old Field Swamp in southeast Missouri are available for dates after 9000 years BP (King and Allen 1977). As at Chatsworth Bog, the trend of increased warmth and/or dryness is evidenced in the pollen record at Old Field Swamp; this is seen in the decrease in pollen of species associated with open-water swamps and the increase in grass community species by 8700 BP. Between 8700 and 5000 BP drought conditions were sufficient to cause the remaining swamp vegetation to be

floodplain area that has been modified over the years. Before construction of the artificial levee the area was prone to seasonal inundation (Benham 1982:19). At present there are neither ponds nor tributary streams on the facility grounds.

2.1.3 Modern Climate

The pattern of climate in St. Louis County is cold winters with average January temperatures of 33°F. (.6°C) and long, hot summers with an average temperature of 77°F. (25°C) in July. Two years in ten will have maximum temperatures higher than 101°F. (38.3°C) and minimum temperatures lower than -7°F. (-21.7°C). The last freezing temperature in spring over the same period is April 20th; the first freezing temperature in the fall is October 17th. The total annual preciptitation is 33.8 inches (86 cm). Sixty percent of the precipitation usually falls in April through September. Two years out of ten the rainfall for the same period is less than 16 inches (41 cm). Average seasonal snowfall is 18 inches (46 cm), average relative humidity in midafternoon is about 60 percent (Benham 1982).

2.1.4 Plant Resources

Vegetation zones in the American Bottom tend to be linearly arranged (Dwyer et al. 1981: 16-17; Emerson and McElrath 1983), aligned parallel to the long axis of the Mississippi Valley contours. The pre-settlement bottomlands on the edge of the Mississippi River were occupied by cottonwood, willow, birch, and sycamore, and by stands of silver maple, hackberry, and pecan. Slough, pond, and lake edges supported black willow, ash, and box elder with lotus, cattails, arrowhead, rushes, and sedges standing in or near the water. Higher ground was occupied by a mixed forest of oak, elm, and ash with associated species consisting of sycamore, pecan, kingnut hickory, mulberry, and honey locust. Lowland prairie occurred in some areas.

2.1.5 Animal Resources

Regional pre-Euroamerican-settlement faunal resources probably consisted of large and small mammals such as deer, rabbit, muskrat, bison

characterized the floodplain as a "patchwork of former river channel remnants, documenting earlier extensive meandering...natural levees, point bars, and other ridges rise 1.5 to 3 m [4.5 to 6 ft.] above the surrounding floodplain, and mark the former location of river meander loops." A levee (see Section 4.0) has been constructed on the east bank of the Mississippi River and Chain of Rocks Canal and this generally forms the western perimeter of the facility; only Kerr Island lies outside it. Much of the facility may originally have been a point bar and natural levee, at the confluence of what was the Gabaret Slough (now the Chain of Rocks Canal) and the Mississippi River.

A new detailed Soil Conservation Service soils description for Madison County is in preparation, but was not available for this management planning effort. Dwyer et al. (1981:16) note that at present the soils in the general vicinity of the ASC are classified within the Landes-Newart-Darwin Association, and that these are dark (mollic?) and range from poorly to well drained series. The mapped soils of St. Louis City, Missouri, just across the Mississippi River from the ASC, belong to the Urban land-Fishpot Association (Benham 1982). Urban land is characterized by surface coverings of asphalt, concrete, buildings, or other impervious materials. These areas have been built up with fill material to alleviate flooding damage. The Fishpot soils are found in yards, open places between buildings, parks, gardens, and undeveloped random tracts. Permeability is moderately slow. The surface layer is a friable silt loam, about one inch thick; silt loam fill material containing 20 percent or greater of fragments of glass, cinders, brick, pebbles, concrete, and metal underlies the surface to a depth of about 47 inches (119 cm). Below this a firm silt loam to a depth of 60 inches (152 cm) represents a buried soil (Benham 1982:18,29). Most of these St. Louis soils are on more elevated landforms, and may not be directly comparable to the ASC floodplain deposits.

2.1.2 Water Resources

The St. Louis ASC is located at the juncture of the Chain of Rocks Canal (originally the Gabaret Slough) and the Mississippi River, in a

2.0 AN OVERVIEW OF THE CULTURAL AND RELEVANT NATURAL HISTORY OF THE ST. LOUIS ASC

A discussion of the physical and cultural environment of the area of the St. Louis ASC is presented to provide baseline data for incorporation of known land use, assessments of the cultural and natural environments, and archeological site information to produce effective management of installation lands. Integration of all these types of data enables the management of archeological resources within the facility boundaries. In addition, the archeological research directions pertinent to the region are discussed.

2.1 THE PHYSICAL ENVIRONMENT

This section describes the modern earth, water, climatic, plant and animal resources that were probably available for human use during the historic period. These data can be used as a baseline against which paleoenvironmental resources may be inferrred. A general description of the American Bottom physical environment is also provided in White et al. (1984), and a brief description of the environment immediately north of the ASC is provided in Dwyer et al. (1981:15-18).

2.1.1 Earth Resources

The St. Louis ASC lies in the Till Plains Section of the Central Lowland physiographic division (Fenneman 1938). Regionally, this area is known as the American Bottom of Illinois (Munson and Harn 1971:3). The topography in the vicinity of the facility is generally level, at 420 ft. [128 m] AMSL (Figure 1-1). Kelly, Linder, and Cartmell (1979:4) have

1.4 THE SOCIOCULTURAL CONTEXT OF THE ARCHEOLOGICAL RESOURCES ON THE ST. LOUIS ASC

The documentary evidence suggests that the St. Louis ASC is located in an area that was developed early in the historic period. Had there been archeological remains of interest to the Native American community, they would probably have been destroyed by nineteenth- and early twentieth-century Euroamerican activities. Most of the historic Euroamerican cultural resources may have been obliterated by the construction of the present facility. If subsurface archeological materials remain within the facility, their major value would probably be their scientific information that could contribute to the study of the American Bottom occupation and/or regional St. Louis history.

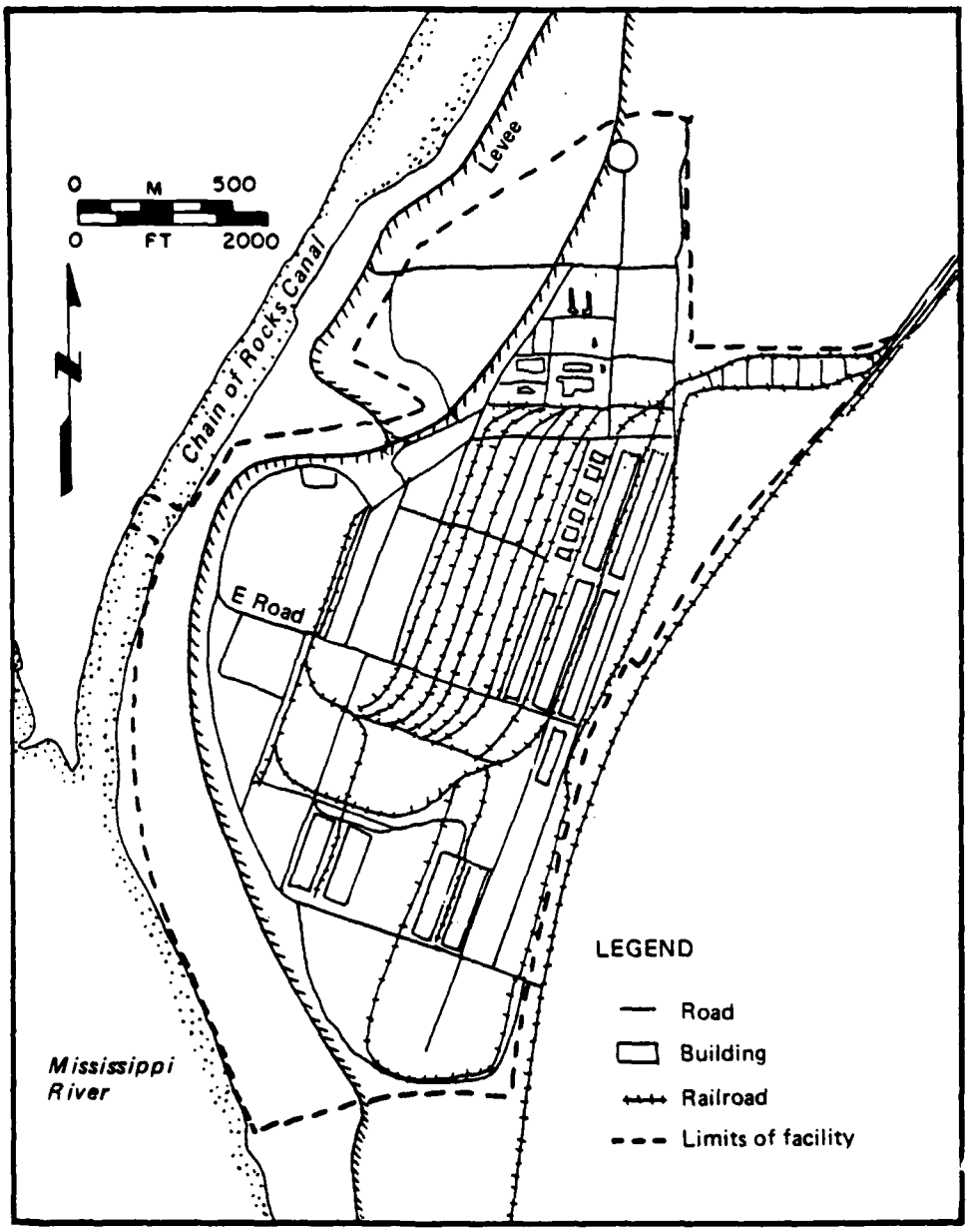


Figure 1-2. MASTER BASE MAP OF THE ST. LOUIS ASC

These procedures should be integrated with planning and management to insure continuous compliance during operations and management at each facility. This can best be achieved by an understanding of the procedures implied by the regulations and an awareness of the cultural resources potential at each facility.

1.2 THE ST. LOUIS AREA SUPPORT CENTER

The 895-acre (371 ha) St. Louis Area Support Center is located in Madison County, Illinois, on the American Bottom floodplain at the confluence of the Chain of Rocks Canal and the Mississippi River and northeast across the Mississippi from downtown St. Louis (Figure 1-2). The ASC is within Venice Township, in what appears on the historic maps to include portions of Secs. 13, 23, and 24, T3N, R10W, at approximately Mississippi River Mile 184. Originally commissioned 1 August 1942, the current mission of the ASC includes providing administrative and logistical support for government agencies in the St. Louis area. The installation is operated by Avco, Inc. of Houston, Texas.

Approximately one-half of the facility acreage has been impacted by construction of some sort. Buildings and activity areas are scattered throughout the Support Center.

1.3 SUMMARY OF PREVIOUS ARCHEOLOGICAL WORK CONDUCTED ON THE ST. LOUIS ASC

No archeological work has been conducted on the St. Louis Area Support Center and no archeological sites are presently known to exist within the facility boundaries. However, the American Bottom is known to have a high density of prehistoric archeological sites including Cahokia Mound, which is on the World Heritage List. The site has been occupied by Euroamericans, being generally used for farmland, since at least the mid-nineteenth century and may retain archeological remnants of that historic use.

- The Archeological and Historic Preservation Act of 1974 (88 Stat. 174, 16 USC 469), which requires that notice of an agency project that will destroy a significant archeological site be provided to the Secretary of the Interior; either the Secretary or the notifying agency may support survey or data recovery programs to preserve the resource's information values

- The Archeological Resources Protection Act of 1979 (93 Stat. 721, 16 USC 470aa; this supersedes the Antiquities Act of 1906 [93 Stat. 225, 16 USC 432-43]), with provisions that effectively mean that

  - The Secretary of the Army may issue excavation permits for archeological resources on DARCOM lands (Sec. 4)

  - No one can damage an archeological resource on DARCOM lands without a permit, or suffer criminal (Sec. 6) or civil penalties (Sec. 7)

- 36 CFR 800, "Protection of Historic and Cultural Properties" (44 FR 6068, as amended in May 1982); these regulations from the Advisory Council on Historic Preservation set forth procedures for compliance with Section 106 of the National Historic Preservation Act

- Regulations from the Department of the Interior for determining site eligibility for the National Register of Historic Places (36 CFR 60, 36 CFR 63), and standards for data recovery (proposed 36 CFR 66)

- Guidance from the U. S. Department of the Army as to procedures and standards for the preservation of historic properties (32 CFR 650.181-650.193; Technical Manual 5-801-1; Technical Note 78-17; Army Regulation 420-40); and procedures for implementing the Archaeological Resources Protection Act (32 CFR 229).

the St. Louis facility, the lack of previous archeological work there, and the sociocultural context of the archeological resources that might merit management consideration.

1.1 PURPOSE AND NEED

A corpus of Federal laws and regulations mandate cultural resources management on DARCOM facilities. Briefly these are:

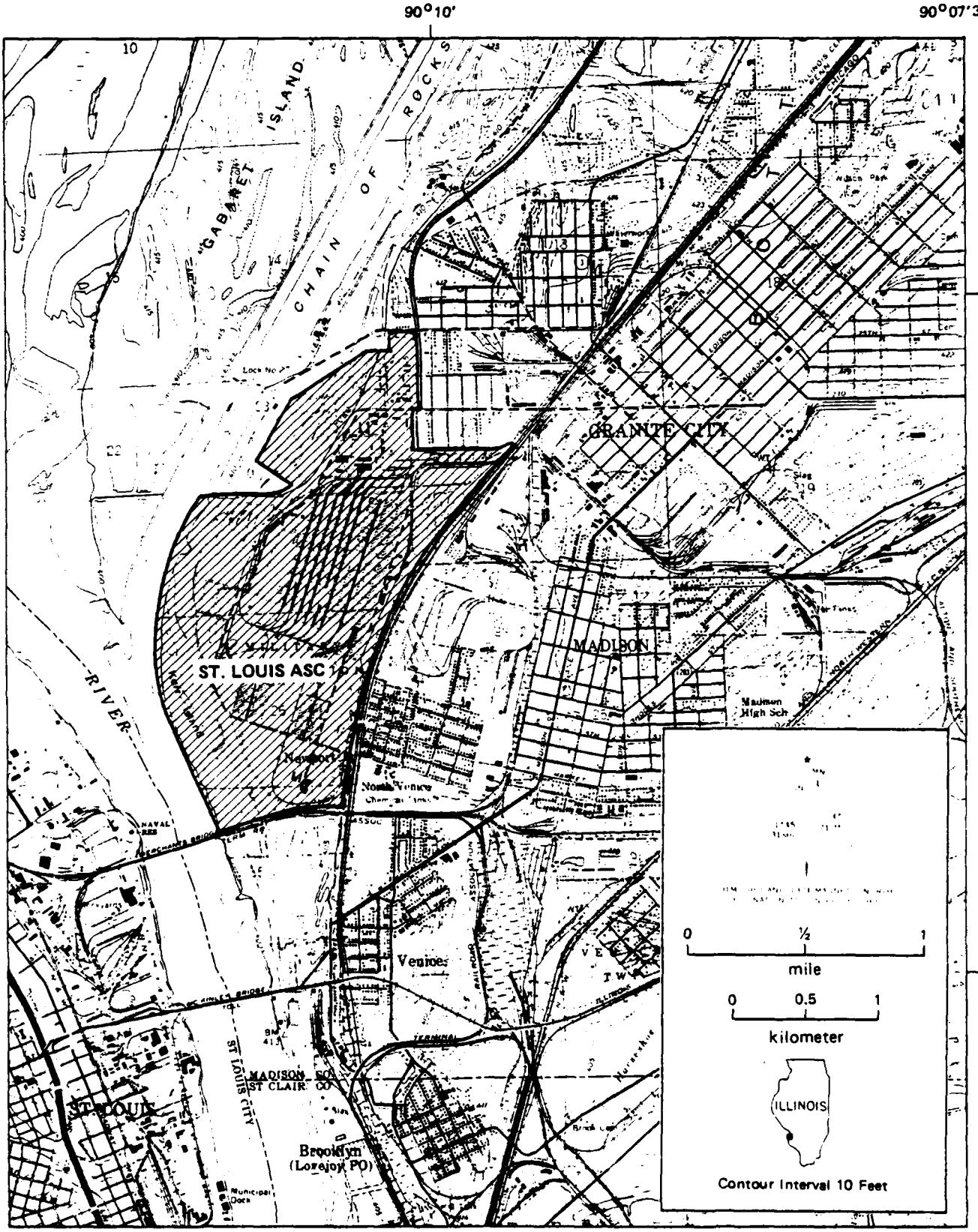
- The National Historic Preservation Act of 1966 as amended (80 Stat. 915, 94 Stat. 2987; 16 USC 470), with requirements to,

  - inventory, evaluate, and where appropriate nominate to the National Register of Historic Places all archeological properties under agency ownership or control (Sec. 110(a)(2))

  - prior to the approval of any ground-disturbing undertaking, take into account the project's effect on any National Register-listed or eligible property; afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the proposed project (Sec. 106)

  - complete an appropriate data recovery program on an eligible or listed National Register archeological site prior to its being heavily damaged or destroyed (Sec. 110(b), as reported by the House Committee on Interior and Insular Affairs [96th Congress, 2nd Session, House Report No. 96-1457, p. 36-37])

- Executive Order 11593 (36 FR 8921), whose requirements for inventory, evaluation, and nomination, and for the recovery of property information before site demolition, are codified in the 1980 amended National Historic Preservation Act



Note: Base map is the Granite City, IL-MO, 7.5 minute topographic quad (1954, photorevised 1968 and 1974)

Figure 1-1. MAP OF THE GENERAL VICINITY OF THE ST. LOUIS ASC

1.0
INTRODUCTION

The following report is an overview of and recommended management plan for the prehistoric and historic archeological resources that are presently known or likely to occur on the St. Louis Area Support Center (ASC) in Madison County, Illinois (Figure 1-1). This facility is an installation of the U. S. Department of the Army DARCOM (Materiel Development and Readiness Command), which as a reservation of public land has responsibilities for the stewardship of the cultural resources that are located on it. The assessments and recommendations reported here are part of a larger command-wide cultural resource management program (the DARCOM Historical/Archeological Survey, or DHAS), which is being conducted for DARCOM by the U. S. Department of the Interior's National Park Service. The following is that portion of the facility-specific survey that is focused on the prehistoric and historic resource base of the St. Louis Area Support Center, and was developed in accordance with the Level A requirements as set forth in the archeological project Work Plan (Knudson, Fee, and James 1983). Because there are no presently recorded and few archivally-identifiable potential archeological sites on the St. Louis ASC, the required Sections 4.0 and 5.0 are minimal statements only in this report. A companion historic architectural study is in preparation under a contract with the National Park Service's Historic American Buildings Survey (HABS) (William Brenner, personal communication 1984).

This section introduces the St. Louis ASC archeological overview and management planning effort. Federal regulations requiring such work and effort are briefly summarized. Also included are brief introductions to

for American Archeology, Kampsville, Illinois, under subcontract to WCC. It follows the guidance of "A Work Plan for the Development of Archeological Overviews and Management Plans for Selected U. S. Department of the Army DARCOM Facilities," prepared by Ruthann Knudson, David J. Fee, and Steven E. James as Report No. 1 under the WCC DARCOM contract. A complete list of DHAS project reports is available from the National Park Service, Washington, DC.

The DHAS program marks a significant threshold in American cultural resource management. It provides guidance that is nationally applicable, is appropriately directed to meeting DARCOM resource management needs within the context of the Army's military mission, and is developed in complement to the state Resource Protection Planning Process (the RP3 process, through State Historic Preservation Offices). All of us participating in this effort, particularly in the development of this report, are pleased to have had this opportunity. Woodward-Clyde Consultants appreciates the technical and contractual guidance provided by the National Park Service in this effort, from the Atlanta and Washington, DC offices and also from other specialists in NPS regional offices in Philadelphia, Denver, and San Francisco.

Woodward-Clyde Consultants

Ruthann Knudson

FOREWORD

As a federal agency with large public land holdings, the U. S. Army is responsible for the stewardship of a variety of natural and cultural resources that are part of its installations' landscapes. The Army's Materiel Development and Readiness Command (DARCOM) presently manages a nationwide network of 65 installations and 101 subinstallations and separate units, which range in size from one acre to over one million acres. As part of its programs of environmental and property management, DARCOM has requested that the U. S. Department of the Interior's National Park Service provide technical guidance to develop programs for managing installation cultural resources.

NPS is thus conducting the DARCOM Historical/Archeological Survey (DHAS), which has two major disciplinary elements. The architectural review and planning function is being directed by the Service's Historic American Buildings Survey (HABS), while the prehistoric and historic archeological resource assessment and planning function is the responsibility of the Service's Interagency Resource Division (IRD). IRD has contracted with Woodward-Clyde Consultants (WCC) for the development of guidelines for the DARCOM archeological management planning effort, and for the completion of 41 overviews and plans throughout the United States. WCC has in turn subcontracted the technical studies to several regional subcontractors, with final editorial review of reports and preparation of text and illustrations handled by WCC.

This overview and recommended management plan for the archeological resources of the St. Louis Area Support Center was prepared by the Center

Table 2-1. A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF THE ST. LOUIS ASC

Cultural Unit					
Tradition	Period or Phase	Date[a]	General Settlement Patterns	General Subsistence Systems	Kinds of Archeological Remains Representative of Period
American	Late Industrial	AD 1884 to Present	Small farms consolidated into large farms; small towns diminish as automobile transportation creates access to regional centers for marketing buying goods	Agriculture and livestock raising	Dominance of American manufactured goods; automatic machine-made bottles, decal decorated ceramics, plastic disposable packaging
	Early Industrial	AD 1884 to AD 1850	New markets for agricultural produce and access to manufactured goods; in 1852 the first locomotive was run in St. Louis, opened new markets west of the Mississippi River	Agriculture and livestock raising	English handpainted, transfer-printed, and annular wares dominate at the beginning of the period with English white ironstone dominating at the end of this period; clay marbles, semi-automatic mold-blown bottles, canning jars with metal rims and glass liners, machine-cut nails
	Homestead	AD 1850 to AD 1830	American settlement and German immigration rapidly increased the population; beginnings of transportation networks and industrial and urban centers with steam power	Agriculture, livestock raising	Log and post and beam structures during early part of period; by end of period ballon frame being built; English ceramics dominate: whitewares with decoration such as handpainted, slip-banded, etc.; hand-forged nails (early to machine-cut (late); free-blown glass containers
	Frontier	AD 1830 to AD 1803	With the Louisiana Purchase America gains control of the region with a slight infiltration of American settlers into the region; French as well as British traders still occupy region; population increases after the War of 1812; historic Native American groups such as as the Osage, Peoria, and Missouri occupy the region	Hunting, gathering, trading, and limited agriculture	Log and post and beam structures; English creamware and pearlware ceramics; hand-wrought nails; free-blown bottles; kettle brass; trade silver; glass beads
Colonial	European Competition	AD 1803 to AD 1754	Spanish, French, and English compete for the loyalty of Native American groups and furs they collect; a shift in settlement patterns in that a number of independent traders establish more permanent trading centers	Hunting, gathering, trading, and limited agriculture	French faience ceramics and English salt-glazed and creamware ceramics, free-blown bottles, gun-flints, metal knives, hand-forged nails, kettle brass, glass beads, trade silver

Table 2-1. A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF THE ST. LOUIS ASC (continued)

Cultural Unit: Tradition	Period or Phase	Date[a]	General Settlement Patterns	General Subsistence Systems	Kinds of Archeological Remains Representative of Period
Colonial (continued)	Early Exploration	AD 1754 to AD 1673	First Europeans into area were French explorers followed by fur traders and missionaries; sites left by them would be short-term camps along rivers; later outposts were established in the same vicinity; Native American groups were the Osage, Missouri, Kansas, and Peoria who had semi-permanent summer villages and winter hunting camps	Hunting, gathering, trading (French); corn and bean agriculture; trading, hunting, gathering (Native American)	Small temporary log structures, cache pits, faience ceramics, free-blown glass containers, glass beads, kettle brass, iron knives, gun parts and gunflints (French); small villages with house remains, pit features, middens, stone tools, French trade goods such as glass beads, brass kettles, steel knives and axes, silver ornaments, guns (Native American)
Oneota	Vulcan phase	AD 1600 to AD 1400	Agricultural villages after decline of Cahokia	Subsistence based on bison, deer, small mammals, fishing, plant collecting and cultivation of corn, beans, and squash; subsistence based upon local availability	Few diagnostic artifacts recovered; Oneota artifacts present, but may represent trade items
Mississippian	Sand Prairie, Moorhead, Stirling, Lohman phases	AD 1400 to AD 1000	Population increase with permanently occupied settlements acting as socio-political centers (e.g., Cahokia) for surrounding villages, hamlets, farmsteads and camps	Intensive cultivation of maize, beans, and squash, or cultivation of seed crops and tobacco; hunting and gathering still practiced	Large sites with community buildings erected on mounds with smaller towns and farmsteads surrounding (e.g., Cahokia); wide variety of artifactual remains including stone pipes, negative painted ceramics, salt pans, chert hoes, shell tempered pottery, and small triangular projectile points
Emergent Mississippian	Various phases	AD 1000 to 800	Sites both on the floodplain and in the uplands, from 0.1 ha to over 10 ha in size (farmsteads to large communities), perhaps associated with mounds	Change from cultivation of maize as a garden crop for immediate consumption, to maize as a storable commodity; complemented by diversified diet, with heavy reliance on aquatic resources (esp. fish)	Mill Creek hoes, local Mississippian as well as traded ceeramics (from both north [grit-temper], south [limestone temper], small marginally retouched flake arrow points with corner- or side-notches, basin- and bell-shaped storage pits, squared to rectangular house plans
Woodland	Late	AD 800 to AD 300	Population consolidation occupying small seasonal or base camps, habitation sites, mortuary sites (burial mounds); village sites restricted to bluff tops and terraces	Probable maize cultivation; intensive utilization of seeds, aquatics	Diverse ceramic styles, small triangular points; diagnostic ceramics include cordmarked jars and bowls with rounded or tapered lips

Table 2-1. A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF THE ST. LOUIS ASC (concluded)

Cultural Unit					
Tradition	Period or Phase	Date[a]	General Settlement Patterns	General Subsistence Systems	Kinds of Archeological Remains Representative of Period
Woodland (continued)	Middle	AD 300 to 150 BC	Population increase with small seasonal or base camps, habitation sites, earthwork, and mortuary related sites located in full spectrum of ecological zones	Dependence on cultivated plants (starchy and oily seeded species: squash, bottle gourd); hunting, particularly deer; gathering of wild plants; trade in exotic items	Habitation sites with variable number of structures and pit features; large mortuary-related sites including mounds, charnel houses, habitation areas; small seasonally-occupied sites dependent on available plant and animal resources
	Early	150 to 600 BC	Small seasonal or base camps with possible increased sedentism; villages; mortuary sites and burial mounds	Hunting and gathering; increased reliance on plant resources	First evidence for ceramic technology. Diagnostic ceramics include Marion Thick, Schultz Thick, Fayette Thick Stemmed and side-notched points; diagnostics include Kramer, Liverpool Stemmed and Dickson; increased evidence for mortuary behavior
Archaic	Late	600 BC to 4000 BC	Small seasonal or base camps with increased exploitation of locally occurring resources, particularly aquatics; shell mounds; sites located throughout uplands, terraces and levees; mortuary related sites possible in mounds on bluffs bordering river valleys	Hunting and gathering of small game; utilization of nut and aquatic resources in cooler, moister environmental conditions	Lithic scatters with a variety of projectile points; ground stone; general purpose tool kits; heavy concentrations of artifacts possible in some locations
	Early & Middle	4000 BC to 8000 BC	Small seasonal or base camps in riverine and forest areas; probably semi-permanent or repeatedly occupied special activity sites and utilization of rock-shelters increased; in addition to site types found in Paleo-Indian, isolated burials and open campsites are found	Hunting and gathering of smaller game animals, more diversified economy, increase in use of vegetal foods, exploitation of more local resources during Hypsithermal	Lithic scatters with ground stone, side-notched and stemmed points, side-notched scrapers; utilization of local cherts
Paleo-Indian		8000 BC to 10,000 BC	Low population density located in small seasonal encampments or base camps	Hunting of megafauna (mastodon, mammoth, bison, muskox, giant beaver) and of smaller game; gathering	Diagnostic projectile points include large fluted points and large, unfluted lanceolate points; points may occur as isolated finds

[a] Dates for prehistoric periods based on Bareis and Porter (1984). References for historic information include Gerlach (1976), Peterson 1949, and Primm (1981).

Population increased in the American Bottom during the Archaic tradition (8000 to 1000 BC), with most evidence of human occupation of the area dating from the Late Archaic (McElrath et al. 1984). Most of the Late Archaic sites appear to represent small base or seasonal camps, evidence that the economic base of the Archaic hunters and gatherers had become more diversified and reliant on more vegetal foods, nuts, and aquatic resources. Again, most of the American Bottom Early, Middle, and Late Archaic remains are found toward the eastern slopes of the Mississippi Valley (McElrath et at. 1984), probably a reflection both of prehistoric site selection and archeological preservation conditions. Archaic sites with depositional integrity are unlikely to be found in the area of the ASC.

Population again increased during the Woodland tradition (1000 BC to AD 1000). Ceramics were first manufactured during the Early Woodland period, while dependence on cultivated plants occurred during the Middle Woodland period (Fortier, Emerson, and Finney 1984) and maize was grown in Late Woodland times (Kelly et al. 1984b). Cultural resource survey of the St. Louis Harbor project area along the Chain of Rocks Canal, just 2 miles north of the ASC, identified six prehistoric sites in a topographic setting similar to that of the ASC (Dwyer et al. 1981). Most of these were multicomponent sites, and they included one Early Woodland component and at least five Late Woodland components. Based on those data it appears likely that Woodland remains may have been present on the ASC prior to its construction in 1942; some of them may be retained with depositional integrity there yet, in buried contexts.

The St. Louis area is noted for large prehistoric towns with community buildings erected on mounds and surrounded by farming hamlets that were occupied during the Mississippian tradition. The early stages of this tradition are archeologically identified as the Emergent Mississippian period, from approximately AD 800 to 1000 (Kelly et al. 1984a), with the Mississippian (AD 1000 to 1400) and Oneota (AD 1400 to 1600 periods represented the fluorescence and more northern expansion of

this tradition (Milner et al. 1984). Mississippian tradition populations were primarily supported by maize, bean, and squash agriculture. Cahokia, 6.5 air miles southeast of St. Louis, is one of the best known socio-political centers dating to the Mississippian tradition. Population in the American Bottom region at that time is estimated to have been about 50,000, with some 30,000 living in Cahokia (Pfeiffer 1977:425). The 1981 St. Louis Harbor cultural resource inventory just north of the ASC identified one Emergent Mississippian and three Mississippian sites, one of the latter probably representing a hamlet (Dwyer et al. 1981). Based on this it appears likely that Mississippian remains may have been present on the ASC prior to its construction in 1942; some of them may be retained with depositional integrity there yet, in buried contexts.

2.2.2 Ethnohistory

During the ethnohistoric period (generally from AD 1600 to 1800), western Illinois and eastern Missouri were occupied by the Illinois Indians (Bauxar 1978:594-601, Callender 1978:673-680). Sites of this period consisted of semi-permanent summer villages, summer hunting camps, and winter camps, with summer villages situated along riverbanks (Callender 1978:674). Subsistence pursuits included agriculture, hunting, fishing, and gathering (Callender 1978:674). By 1832 all Native American claims to land in Illinois had been sold to Euroamericans, the remaining Illini population having been resettled on a reservation in eastern Kansas and later moved to a reservation in northeastern Oklahoma (Callender 1978:679).

There is no known specific documentation of any village or other historic Native American site in the vicinity of the St. Louis ASC. Native American occupation of the ASC lands during this time period cannot be discounted. However, it is likely that the remains of any such occupation would have been relatively ephemeral, and not to have left many remains with depositional integrity that might have been identifiable prior to ASC construction in 1942. If such materials were

found with depositional integrity, they would likely have high historical, scientific, and sociocultural values because of their rarity and association with several cultural perspectives.

2.2.3 History

Two cultural traditions are recognized during the historic period in the St. Louis region: Colonial and American. The Colonial and American traditions comprise cultural resources that date before and after the American Revolution, respectively. The Colonial tradition is divided into an Early Exploration Period and a European Competition Period. Within the American Tradition four periods are recognized: Frontier, Homestead, Early Industrial, and Late Industrial.

The Joliet and Marquette expedition in 1673 marked the beginning of the historic period in the St. Louis area. This period saw early French exploration of and missionary expeditions into the Illinois Country and in 1682 LaSalle claimed the entire Mississippi basin for France, naming it Louisiana (Primm 1981:3). In order to fortify their imperial claims the French built a string of forts between their St. Lawrence bases and the Mississippi Valley. Fort St. Louis, erected in 1682, was the first French outpost established in the modern St. Louis area. Later the villages of Kaskaskia and Cahokia were founded within the American Bottom and the outposts at Fort de Chartres and Ste. Genevieve soon followed (Primm 1981:3-4). Dwyer et al. (1981:27, citing Southard [1912:485]) note that there were French settlers on Choteau Island (about 3 miles north of the ASC) by 1750. It is possible that there were French settlers in the area of the ASC, farming the rich alluvial lands behind the natural river levees.

The intercolonial struggle between France and Great Britain for control of North America resulted in France's relinquishing the Louisiana Territory west of the Mississippi to Spain and the land east of the river to Great Britain under terms of the Treaty of Paris in 1763. French settlers abandoned the settlements east of the Mississippi River and

began to extend their settlements on the west bank. St. Louis was established as a town in 1764 after the Spanish took possession, but remained essentially French in character (Gerlach 1976:11; Peterson 1949:2). In 1770 the Spanish began to exert control over the area, as they were mainly concerned with exploiting the reaches of the frontier and to protect the area from the English and the growing American competition and expansion. American occupation of American Bottom began in 1778, when George Rogers Clark took control of Cahokia, and Americans began to move into the area in relatively large numbers after the close of the Revolutionary War (Esarey 1984).

The American Revolution heightened antagonism between Spain and England, who continued to compete after the war for Native American alliance, hoping to gain a monopoly over the thriving fur trade. The most serious issue confronting the Spanish rulers was the relatively slow pace of development. To rectify the situation, the Spanish governor induced Americans to emigrate from Illinois through dispensation of land grants. St. Louis now began its transformation from an outpost of European nations into an American frontier town. In complement, the American Bottom on the eastern side of the Mississippi retained much of its rural, agrarian character. Its large coal deposits also provided an energy source for the growing urban center, and led to the industrialization of East St. Louis and other areas of Madison County. Historic American farmsteads and associated sites could have been located within the area of the ASC, though it is not likely that they have left archeological remains with depositional integrity. Again, if identifiable they may have considerable historical and sociocultural value because of their rarity.

With the Louisiana Purchase in 1803 the region came under American control. Venice Township, within which the ASC lies, was first settled by Americans in 1804 though it had apparently been occupied earlier by some French settlers (Brink 1882:520, 522). St. Louis grew slowly, the town continuing as an urban outpost on the far western frontier. For

a brief while the area was still shaped more by traditional French factors than by development due to accession by the United States. However, immigration into Missouri increased rapidly within the next decade; the immigrants were predominately American settlers who tended to settle along the Missouri River (Gerlach 1976:24). American troops stationed at Fort Bellefontaine on the Missouri River remained in the area after the War of 1812, and by 1830 the population of Missouri was more than 90 percent American (Gerlach 1976:26).

During the Homestead period most of the St. Louis area settlers were from Tennessee, Kentucky, and Virginia. German and Irish immigrants began moving into the area, especially on the Missouri side, in the early 1800s. The area became a distribution point for agricultural products as well as a center for the Army's western operations. Venice became the site of transportation terminals between Granite City to the east and the St. Louis river crossing. In 1837 St. Louis received a small appropriation from Congress to stabilize its harbor (Primm 1981:156), and from that time on the artificial channelling and structuring of the Mississippi River has continued. In 1866 the American Bottom levee system was completed, and while it may have been improved in 1912 and was modified in 1953 during construction of the Chain of Rocks Canal, some of its segments may retain their mid-1800s structural integrity and historical significance. A portion of the levee system is preserved within the ASC (Section 4.0).

The basic settlement pattern of the preceding Homestead Period continued into the Early Industrial period, but the density of farmstead distribution became greater owing to a general population increase. The railroad and river connections allowed the St. Louis region to grow rapidly as a manufacturing and distribution point. Food processing, sugar refining, and meat packing dominated the area's early industrial economy (Primm 1981:201), most of it located on the Missouri side of the river but some of it coming to be concentrated in East St. Louis and its associated communities. To broaden its industrial base, St. Louis began

a shift from water transport to railroad traffic. River trade remained essentially stable early in the period but rapidly declined as the railroads expanded.

By the mid-1880s St. Louis had made the transition from a commercial city dependent upon the river, to a mature, diversified, industrial metropolis. St. Louis had become a city that had a large discrete industrial and residential section as well as satellite communities in the metropolitan region; the Illinois communities continued to develop as such satellites, and to provide a significant agricultural support base for the city. A shift from the heavy industries of the previous period to newer and lighter domestic industries, such as dress manufacturing, furniture making, and book publishing occurred at this time.

The archeological overview and management planning effort reported here could not support an intensive review of archival data about the early historic occupation of the St. Louis ASC. Some of that information will be provided in the complementary historical architectural/ engineering report being prepared by the Historic American Buildings Survey (HABS). Preliminary review of an 1876 land ownership map of the project area (reproduced in Dwyer et al. [1981:Figure 20]) suggests that the area was farmed, and that several farm houses or other buildings were located there (see Section 4.0). The St. Louis Harbor survey just north of the ASC identified six historic resources within their small study area, including two cemeteries, a family monument, two farmsteads, and a dump, and recommended that the first five of these was eligible for the National Register of Historic Places. Remnants of historic farmsteads such as these could be retained within the ASC boundaries, if they have not been destroyed by military construction since 1942.

2.3 ARCHEOLOGICAL RESEARCH DIRECTIONS

2.3.1 Regional Concerns

The Illinois Department of Conservation, Division of Historic Sites, has completed an interim archeological preservation plan for the state of

Illinois (Downer et al., 1981). As of March 1979, 0.4 percent of Madison County was surveyed for archeological resources. In 1979 Madison County was ranked in the top 12 percent of Illinois counties needing survey, based on projected population growth and lack of existing data. However, due to the presence of Cahokia, a large Mississippian town 6.5 air miles (11 km) to the southeast of the facility, portions of the American Bottom of Illinois have been subjected to more intensive archeological investigations (see Fortier [1981:88-89] for an overview of this work; Benchley and DePuydt 1982; Fowler 1969; Fowler and Hall 1976; Nassaney et al. 1983). In audition, the FAI-270 surveys and excavations conducted by the University of Illinois have increased the prehistoric and historic archeological data base for this area (Bareis and Porter 1984) and an overview of the archeological resources of metropolitan St. Louis has been completed (Benchley 1975).

Paleo-Indian research in the area has been sporadic because of the isolated nature of the archeological remains. During the Archaic period, it appears that the distribution of grasslands expanded in western Illinois. Archaic hunters and gatherers may have responded by abandoning upland regions and locating sites in floodplain areas; evidence of such adaptations may be retained in archeological sites on the St. Louis ASC. In addition to changes in settlement location, resource exploitation, and mobility, later Archaic peoples participated in more visible mortuary behavior and trade. These patterns were elaborated and intensified during the post-Archaic Woodland and Mississippian traditions. Investigations of regional Archaic sites can provide a baseline against which to analyze later changes in prehistoric patterns of resource exploitation and in other religious, economic, and social behavior.

One of the major research questions relating to Early Woodland sites is the development and effect of ceramic production on other prehistoric cultural systems. In addition, cultural-ecological adaptations and social and religious patterns previously evident during the Archaic seem to be intensified. It has been postulated that Early Woodland people

lived in small seasonal campsites along the interchannel areas of the floodplain, and used the natural resources according to a wide, seasonal round of exploitation focused on aquatic and nearby upland resources (Fortier, Emerson, and Finney 1984:102). Middle Woodland sites appear now to represent a continuum of this settlement and subsistence system, with cultigens becoming more important during late Middle Woodland--this continuum appear to represent increasing intensification of the use of these cultigens and seed resources (e.g., Chenopodium, knotweed, maygrass). The Woodland period contrasts sharply with the Late Archaic evidence from American Bottom, which reflects a trend toward large permanent settlements (McElrath et al. 1984). There was an apparent increase in mortuary-related behavior (i.e., burial mounds) during the Middle Woodland. Corn, squash, amaranth, and chenopod horticulture occurred during the Middle Woodland in surrounding regions, and its effects on the sites of this area is an important research consideration that might be able to be addressed.

During the Late Woodland period economic and social changes are apparent in the present archeological record. These consist of the increased use of aquatic resources and seeds, and a decrease in artifactual and social complexity. Investigations of any such sites present in this region may be critical to understanding the transition between Middle Woodland cultural complexity and succeeding Mississippian developments.

The height of prehistoric complexity in the central Midwest was reached during the Mississippian period. Permanent Mississippian towns such as Cahokia and the Mitchell site were located in the immediate vicinity of present-day St. Louis. In addition, smaller towns and hamlets surrounded these large socio-political centers. Maize, beans, squash, seed crops, and tobacco were cultivated, though hunting and gathering were still practiced. Archeological investigations of Mississippian sites are critical in the understanding of a large socio-policito-religious unit and interactions with smaller villages and hamlets.

Contact with early traders and trappers produced a profound change in the social, political, and economic adaptations of Native Americans in the region in the seventeenth and eighteenth centuries. As a result of these early explorations and later settlements, disease, trade goods, and different economic pursuits were introduced. In addition, inter-tribal hostilities may have been accentuated. The relationship between early Euroamericans and Native Americans may be examined within the St. Louis ASC area. Proto-historic or early historic Native American sites are as yet undocumented on the facility.

Historic archeological research can be extremely varied. Major questions for regional investigation may include the following: the impact of early trapping and trading on Native American populations and on European political rivalries; the use of rivers and later of railroads for transport, and its effect on surrounding industry and populations; the early settlement of the area and subsequent economic changes resulting from technological advances in agriculture and mining; and the effect of a decreased mining activity on the area and the development of St. Louis as a modern commerce center.

2.3.2 Installation-Specific Archeological Research Directions

At present no intensive archival review or archeological field inventory has been conducted on the ASC, and no prehistoric or historic sites of significance are known to exist there.

3.0 AN ASSESSMENT OF ARCHEOLOGICAL RESOURCE PRESERVATION AND SURVEY ADEQUACY

In this section, the environmental and historic constraints that may limit the amount and kind of archeological site preservation are considered as they apply to the St. Louis ASC, along with an assessment of the coverage of previously conducted archeological surveys. In addition, assessment is made as to the adequacy of data collection, and any gaps that may exist are documented.

3.1 ENVIRONMENTAL CONSTRAINTS TO SITE PRESERVATION

Prior to the construction of the artificial levee along the Gabaret Slough (now the Chain of Rocks Canal) and the Mississippi River by the Army Corps of Engineers, facility lands were probably protected only by low natural levees and would have been subject to periodic inundation. Burial of archeological sites would have occurred. Reworking of materials along old abandoned river channels of the Mississippi would have occurred as the channel moved. Finally, reworking of low-lying floodbasin sediments would have occurred if secondary floodbasin channels had moved. In short, the potential for past adverse natural impacts on the physical integrity of archeological resources in the floodplain is high. This is complemented by the fact that this is a floodplain system of ridges and swales associated with old meanders, and the St. Louis Harbor survey area just north of the ASC demonstrated the presence of both historic and prehistoric sites in this environment.

3.2 HISTORIC AND RECENT LAND USE PATTERNS

Prior to the establishment of the ASC, human activity on facility property during the Historic period undoubtedly impacted earlier cultural resources. Excavations for basements and foundations of farm buildings and other structures, as well as construction of the levee and a service road network, could have disturbed any earlier archeological remains at those locations. Because places favored by Euroamericans for habitation frequently also were favored by Native Americans for similar reasons, there is a strong probability that a substantial number of farmsteads were established at places where prehistoric cultural resources were already present.

Prior to federal purchase, the St. Louis ASC property was used for agricultural purposes (Alan Brandt, personal communication 1984; Dwyer et al. 1981:Figure 20). No leasing program presently exists on the facility.

A summary of all ground disturbance information for the St. Louis facility is presented in Table 3-1 and Figure 3-1. Ten areas of major ground disturbance were calculated for the entire facility for a total of 480 acres of impacted land. Eight of these areas consist of construction areas, while one is a filled area (the golf course, GDA 9) and the last (GDA 10) consists of grassy areas where railroad lines have been removed. The facility is criss-crossed by underground gas, steam, electrical, telephone, sewage and water lines; storm sewers; and gas transits. Many of these reach a depth of 12 feet. There is also a road network, and the historic levee system. Approximately half of all facility lands have been impacted by some sort of modern construction.

The ratios of the disturbed to total area for the ASC are varied and range from 0-30 percent to 90-100 percent (see Figure 3-1). These ratios are based on the type of disturbance, the concentration of building activity within the ground disturbance area, and the function of the area. One ground disturbance area, i.e., the administrative, maintenance

- Identification of funding, staffing, and milestones needed to implement the plan.

This document provides the necessary information for beginning to address these objectives for archeological resources on the St. Louis ASC. The information provided here can be used to determine if any activities of the on-going facility mission (or any special mission) will damage or have adverse effects on any "likely to occur" archeological resources; it thus can be used to develop alternatives for the mitigation of those effects. Consultation with the SHPO and ACHP about the preservation program as outlined in the HPP will ensure compliance with the historic preservation laws and regulations outlined in Section 1.0. Further, it will integrate preservation considerations into general facility and future project planning in a timely and cost-effective manner.

6.2.2 Project-Specific Resource Protection or Treatment Options

Approximately 50 percent of the St. Louis facility has been impacted by modern construction, and any future ground-disturbing activities in those areas is unlikely to need pre-construction review of its potential adverse impacts to significant archeological resources (the exception might be deep new excavation into previously undisturbed deposits beneath modern buildings or structures). However, new ground-disturbing construction in, or leasing of, ASC land would be a federal undertaking requiring compliance with Section 106 of the National Historic Preservation Act (see Section 1.1 of this report). Section 106 requires that DARCOM consult with the Illinois SHPO and the federal Advisory Council on Historic Preservation about the effects of such an undertaking on significant archeological sites. Without a SHPO-accepted facility preservation plan, it is DARCOM's responsibility to either complete such an evaluation and consultation program for each project or to have on file documentation of the completion of adequate survey and evaluation so as to confirm the absence of or lack of significance of any archeological site that might be affected by the proposed activity.

a Historic Preservation Plan (HPP) or have documentation on file indicating whether there are any known archeological resources appropriate to such management planning. At present there is no such negative declaration or Plan.

The Department of the Army Regulation 420-40 prescribes Army policy, procedures, and responsibilities for compliance with the National Historic Preservation Act of 1966, as amended; for the maintenance of state-of-the-art standards for preservation, personnel and projects; and for accomplishment of the historic preservation program. As outlined in those regulations, an HPP has the following objectives:

- Integration of historic preservation requirements with the planning and execution of military undertakings such as training and construction and real property or land use decisions

- Implementation of a legally acceptable compliance procedure with the Advisory Council for Historic Preservation (ACHP) and the State Historic Preservation Office (SHPO).

- Outline priorities for acquiring additional information to determine if there may be additional projects not yet located or identified

- Establishment of a procedure for the evaluation of historic properties

- Ranking of facility projects by their potential to damage historic properties

- Provision of guidelines for the management of historic properties

- Provision of historic and archeological data for the installation's information systems

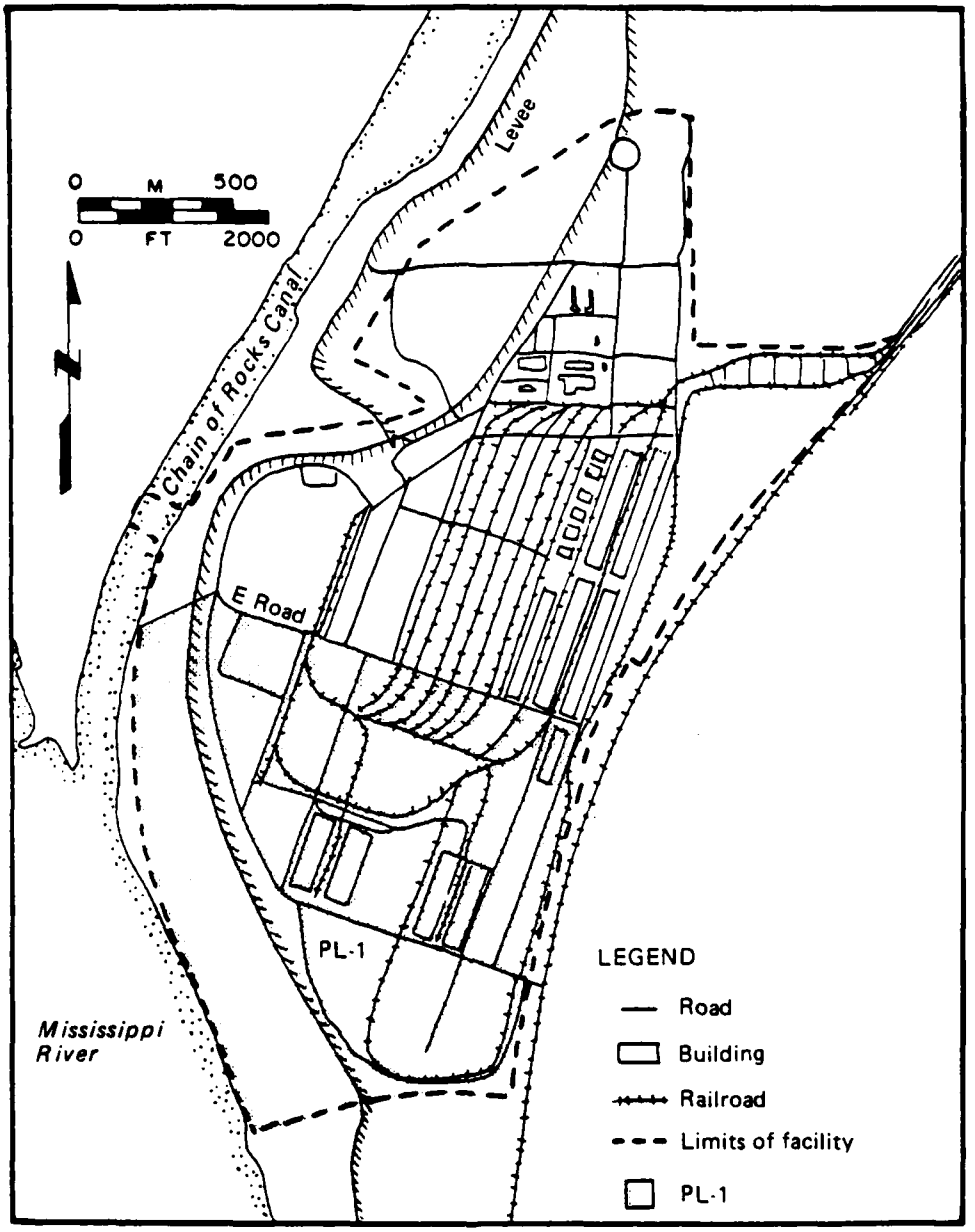


Figure 6-1. MAP OF AREAS OF ON-GOING OR PLANNED ACTIVITIES ON THE ST. LOUIS ASC THAT COULD AFFECT ARCHEOLOGICAL RESOURCES

Table 6-1. A SUMMARY OF ON-GOING AND PLANNED ACTIVITIES ON THE ST. LOUIS ASC THAT COULD AFFECT ARCHEOLOGICAL RESOURCES

Activities						Associated Resources				Impacts		
Description	Date	Area[a]	Size(a)	Est. Depth Below Surface (ft.)	Ratio of Disturbed to Total Area[b]	Resource Class	Resources Known or Predicted[c]	NRHP Status	Other Value	Direct[d]	Indirect[d]	Mitigation Options[d]
On-going												
Tank Driving Range	On-going	PL-1	280	1-3	1:10	None	INSF	None	None	NA	NA	NA

[a] See Figure 6-1.

[b] Not all the ground within the boundaries of an on-going or proposed activity area will necessariiy be affected. This ratio is an evaluation of the acres of surface projected to be disturbed within a proposed activity area in proportion to the overall size of the area itself.

[c] INSF = Information not available with which to make a valid assessment.

[d] NA = not applicable.

6.0
A RECOMMENDED ARCHEOLOGICAL MANAGEMENT PLAN FOR THE ST. LOUIS ASC

6.1 FACILITY MASTER PLANS AND PROPOSED IMPACTS

No long-term planning document is available for the St. Louis ASC. Facility personnel state that no major modification plans have been finalized (Alan Brandt, personal communication 1984). A total of 273 housing units are planned for the facility but no location has been determined. Work on a 280-acre tank driving range has, however, been initiated south of E Road (PL-1, Table 6-1, Figure 6-1). No sub-surface construction will occur, but a portion of the surface of this parcel will be impacted. At present the entire range has not been delineated, but the course is in operation.

6.2 APPROPRIATE ARCHEOLOGICAL MANAGEMENT GOALS WITHIN THE ST. LOUIS ASC'S MASTER PLAN

6.2.1 General Facility Planning

This report documents the lack of any presently known archeological investigations on the St. Louis ASC, but the possibility that significant prehistoric or historic buried materials may be retained there. This information can be used as a basis for developing an archival and field inventory program to demonstrate the absence of sites on the facility, or the presence and hence need for the preparation of an Historic Preservation Plan (HPP) to be implemented on the facility. Army Regulation 420-40, drafted pursuant to the National Historic Preservation Act, and 36 CFR 800 (Section 1.1) require that each DARCOM facility have

values through a data recovery program. Such a program would be little different from the non-reactive investigations discussed above, but is likely to be conducted in conjunction with requirements for facility development. Again, an important element in such an emergency research program would be the adequate analysis, curation, and publication of the recovered information.

In the event the ASC has accomplished its Section 106 procedures and finds a previously unidentifiable resource during its ground disturbance and/or construction phase, it should effect compliance using 36 CFR 800.7 procedures.

Thus, in summary the ideal goals for the management of any archeological resources that may still be retained within the St. Louis ASC:

- Inventory and evaluate all the archeological resources on the facility

- Conserve the significant sites, allowing their research use only within a regional research design

augering, test excavation, remote sensing) to evaluate the contents, extent, and integrity of the identified resources. Finally, this stage should include an identification of the important research or other values inherent in the inventoried sites, both as a basis for the development of future research designs as well as for the evaluation of management options should the resource be threatened with damage or destruction by non-archeological-research activities. For purposes of future research development, the identification and evaluation of the resources needs to be well documented and available to the research community. For future resource management purposes, it needs to be appropriately stated within the U. S. Department of the Interior's terminology and concepts of resource significance.

The prevailing professional approach to archeological resources for the past decade has been one of conservation (Lipe 1977:21)--"Our goal . . . is to see that archeological resources everywhere are identified, protected, and managed for maximum longevity." Thus, the ideal objective is to develop a "bank" of significant sites that may be investigated through a variety of techniques, including destructive excavation, only as part of well designed research projects that are scheduled within a regional research program that seeks to maintain the overall range of undisturbed sites for future use. A corollary to this is that the sites should be allowed to be investigated by scientists in a non-reactive situation (i.e., not threatened with immediate destruction of the resource). Such basic investigation of resources on the public lands should be conducted only within research designs that are appropriate to the contemporary regional or broader study questions. It should also be conducted only within a program that includes long-term protection of the information collected from the resources, and a commitment to the public dissemination of that information.

If an archeological site evaluated as being of research or sociocultural significance is going to be damaged or destroyed, the ideal objective would be to preserve its included materials and information

conservation, excavation and analysis, and interpretation activities. It would emphasize the conservation of significant resources, and their excavation or "use" only to mitigate any unavoidable destruction or damaging activities, or when in search of important information that is being collected for studies within a well designed research project.

A first element in addressing the need for, or actually developing, a historic preservation plan for the St. Louis ASC is identifying what is there. Such an identification program should begin with an intensive and extensive review of oral and archival historic information. The focus of this review would be to evaluate the historical information base presently available prior to any historical archeological investigations, and through consultation with professional historians and people with personal ties to the pre-1940 occupants to evaluate the historic significance of any materials that might be left on the ASC.

The second stage of the identification program would be the field inventory of the undisturbed portions of the ASC to identify the surface evidence of any historic or prehistoric archeological sites. Such an identification project would include the pedestrian survey of the ASC, with close-interval spacing of survey transects. Large-scale aerial photographs and detailed topographic maps should be used for field reference. Standard forms for recording the surface characteristics of identified prehistoric and historic resources should be completed as part of the inventory procedures and the area and methods of the survey should be well documented. The preferred survey policy for most conte rary projects is to make only minimal collections of artifacts off of te surfaces, retaining only those that are diagnostic of particular styles and/or technologies or are immediately vulnerable to uncontrolled collection or damages. Any collected materials should be fully described and appropriately curated.

In addition to a description of the surface evidence of these sites, the ideal inventory would include subsurface investigations (e.g.,

5.0
AN ASSESSMENT OF THE SIGNIFICANCE OF THE ARCHEOLOGICAL RESOURCE BASE ON THE ST. LOUIS ASC

5.1 THE SIGNIFICANT RESOURCE BASE

No archeological sites are presently identified on the St. Louis ASC, but significant prehistoric and historic sites exist in the vicinity and some (probably prehistoric) archeological materials were reportedly found during ASC construction in the 1940s (see Section 4.0). The American Bottom levee system runs through/around the facility, and historic homesteads are known to have existed on the property in the late nineteenth century. Approximately 50 percent of the surface of the facility has been impacted by modern construction, paving, or fill. Thus surficial archeological remains have probably been affected. However, subsurface archeological resources with significant scientific, historic, or sociocultural values may be preserved beneath modern construction areas. Given the unique nature of the American Bottom archeological region, any prehistoric or historic resources recovered is likely to be highly significant.

5.2 IDEAL GOALS AND OBJECTIVES

Given the knowledge that significant archeological resources may be located within the St. Louis ASC, the following is an outline of a desirable program to identify and if appropriate (i.e., if significant sites are present) to manage these resources for the best preservation or use of their research and sociocultural values. An ideal archeological resource management program would encompass identification, evaluation,

4.0
KNOWN ARCHEOLOGICAL RESOURCES ON THE ST. LOUIS ASC

There are no known archeological sites on the St. Louis Area Support Center at present. Archeological remains are reported to have been found on the facility during the 1940s construction (Alan Brandt, personal communication 1984), but there is no further information regarding their content, context, or cultural affiliation. The American Bottom levee system forms the western perimeter of the ASC, and portions of it may have historic value; the system needs intensive archival and field evaluation. Historic 1873, 1876, and 1892 maps of the ASC area (reproduced in Dwyer et al. [1981:Figs. 20-22]) suggest that the northern portions of the levee included within the ASC may be from the eighteenth century, and that seven or eight farmsteads were on lands that are now included within the ASC. Comparison of the historic maps with the modern USGS topographic map (Granite City, IL-MO 1954 [photorevised 1968, 1974] 7.5 min. sheet) suggests that much of the western portion of the ASC has been filled in over the last century. It should be noted that in several locations within the American Bottom area, within the past few years, archeological sites have been found at depths of 3-6 ft. (1-2 m) below the modern ground surface, including underneath the foundations of modern buildings (Emerson 1982; Jackson 1980).

and storehouse area, is coded as 0-30 percent disturbed; the wastewater plant is coded as 30-60 percent disturbed; GDAs 5, 6 and 10 are coded as 60-90 percent disturbed; while the open sheds, golf course, warehouses, gymnasium, heating plant, and storehouse are coded as 90-100 percent disturbed. The depth of ground disturbance varies across the facility, from surficial disturbance to 10 feet.

3.3 PREVIOUS CULTURAL RESOURCE INVESTIGATIONS; COVERAGE AND INTENSITY

No archeological surveys were conducted on the St. Louis ASC prior to its construction in 1942, nor have any been conducted to date. No archeological sites are presently known to exist within the facility boundaries, though a preliminary review of area maps suggests that some may be present there (Section 4.0). A survey of the historic architectural resources on the ASC is in progress (William Brenner, personal communication 1984).

3.4 SUMMARY ASSESSMENT OF ARCHEOLOGICAL DATA ADEQUACY, GAPS

The lack of information on archeological resources on the St. Louis ASC is due in part to a lack of field or intensive archival survey, and also to the all-encompassing nature of the ground disturbance on the facility such that surficial survey is difficult.

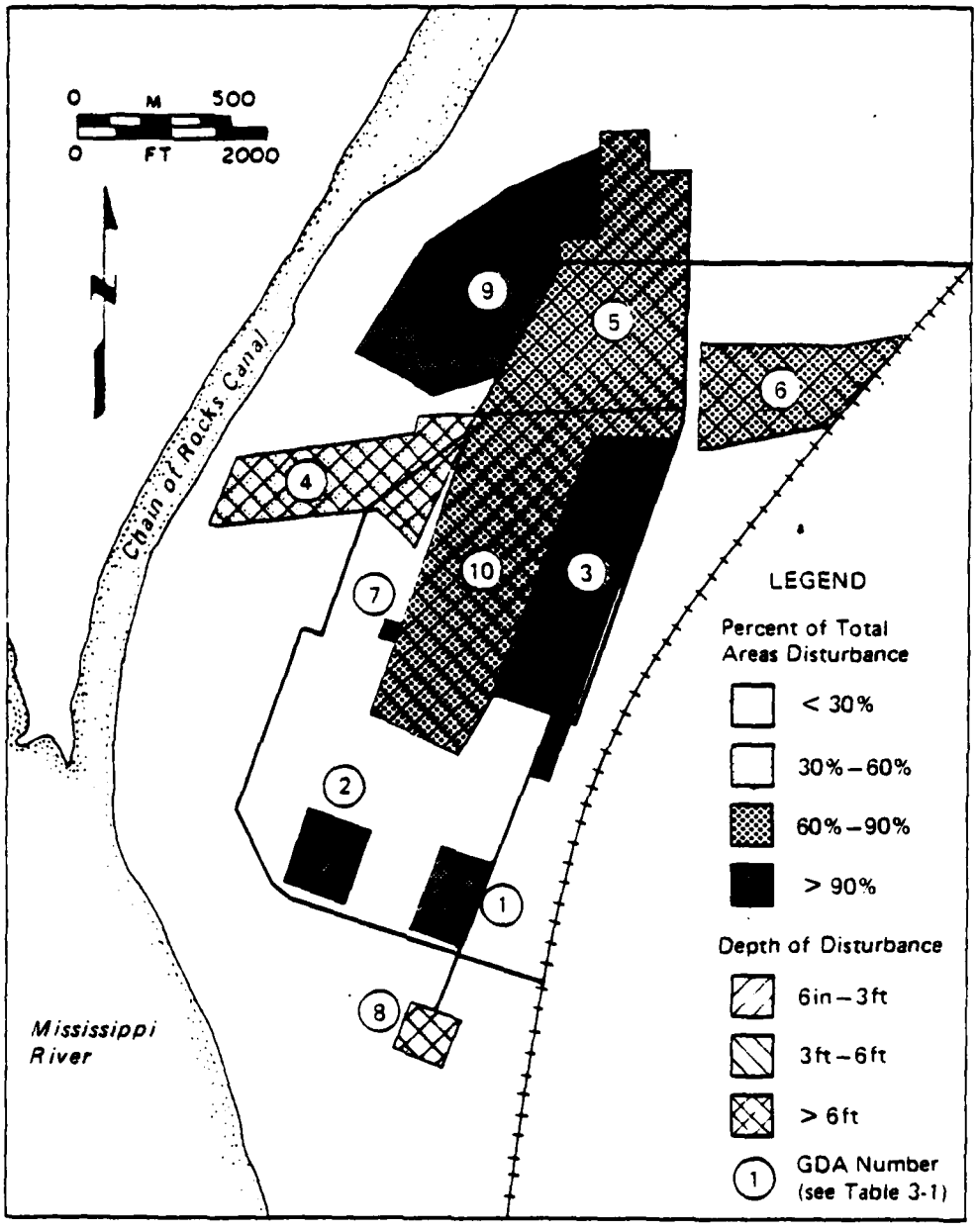


Figure 3-1. MAP OF AREAS OF HISTORIC AND/OR MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE ST. LOUIS ASC

Table 3 1. A SUMMARY OF HISTORIC AND MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE ST. LOUIS ASC (concluded)

GDA No.[a]	Type of Disturbance	Date Conducted (yr)	Reference[b]	Area Disturbed (acres)	Estimated Depth Below Surface (ft)[c]	Ratio of Disturbed to Total Area[d]	Location of Disturbed Area						
							UTM[e]		Legal Reference			USGS Quad Map[f]	Coincidental Sites
							Northing	Easting	Township	Range	Section		
10	Railroad lines Heliport pad	1943	Facility Maps USGS Maps	110	0-10	9:10	4287750 4287750 4285625 4285825	746000 745625 745625 745175	3N	10W	23	G754	

[a] Ground Disturbance Areas (GDAs) as mapped in Figure 3-1.

[b] General Site Map, Granite City Army Installation Drawing No. 18-02-49, 3 of 12 (1967), Granite City, IL.

[c] UN = Unknown. The depth of fill over the golf course is unknown (Alan Brandt, personal communication 1984).

[d] Ratio of disturbed to total area: 1:1 = 90-100% disturbed; 9:10 = 60-90% disturbed; 2:3 = 30-60% disturbed; 1:3 = 0-30% disturbed.

[e] UTM = Universal Transverse Mercator coordinates, Zone 15. If the area is less than 10 acres in extent, the cordinates record the approximate center of the site. If it is larger, they record the corners of a 3-or-more sided figure than encloses the site. Coordinates have been calculated specifically for this study.

[f] G754 = Granite City 7.5 min. sheet (1954, photorevised 1968 and 1974).

Table 3-1. A SUMMARY OF HISTORIC AND MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE ST. LOUIS ASC

CDA No.[a]	Type of Disturbance	Date Conducted (yr)	Reference[b]	Area Disturbed (acres)	Estimated Depth Below Surface (ft)[c]	Ratio of Disturbed to Total Area[d]	Location of Disturbed Area						
							UTM[e]		Legal Reference			USGS Quad Map[f]	Coincidental Sites
							Northing	Easting	Township	Range	Section		
1	Open Sheds	1952	Facility Maps	10.9	0-1	1:1	4285300 4285000 4285220	745600 745520 745760	3N	10W	26	G754	
2	Open Sheds	1953	Facility Maps	9.9	0-1	1:1	4285100 4285340 4285160	745300 745360 745100	3N	10W	26	G754	
3	Administration, Warehouse	1942-44	Facility Maps	102.	8-10	1:1	4285520 4285620 4285800	745940 746280 745760	3N	10W	23,26	G754	
4	Granite City Wastewater plant, Storehouses, Shops	1943-43	Facility Maps	52.2	10	2:3	4286300 4286480 4286500	744950 745000 745520	3N	10W	23	G754	
5	Maintenance Shops, Warehouses, Exchange, Commissary, Heating, Housing	1943-53	Facility Maps	85.4	0-1 8-10	9:10	4286800 4286760 4287660	746280 745700 746250	3N	10W	23	G754	
6	Maintenance Shed, Load Lines	1943	Facility Maps	32.6	0-10	9:10	4286740 4286780 4287000	746320 746700 746900	3N	10W	24	G754	
7	Gymnasium, Heating Plant, Storehouse	1944	Facility Maps	.58	8-10	1:1	4285980	745400	3N	10W	26	G754	
8	Administration, Maintenance, Storehouses	1944-73	Facility Maps	4.6	8-10	1:3	4284740 4284720 4284580	745450 745600 745580	3N	10W	26	G754	
9	Golf Course	1948	Facility Maps	72	UN	1:1	4287750 4286750 4286775	746000 745500 745125	3N	10W	23	G754	

Since the entire undisturbed portions of the St. Louis have not been subjected to intensive review, construction or ground disturbance in areas currently unsurveyed could impact archeological resources. Consequently, if such activity was to occur, survey, evaluation, and perhaps required mitigative data recovery (scientific archeological investigation of a significant site) could be necessary on a project-specific basis. Such evaluation and preservation programs require consultation with several federal agencies, and are frequently time-consuming. However, such a project-specific program can usually be expedited if the appropriate preservation planning has been completed and reviewed by the SHPO.

If any subsurface disturbance were to occur and archeological resources were encountered, the following are recommended in compliance with 36 CFR 800.7 and the National Preservation Act:

- Notification will be accomplished by the facility of the emergency discovery to the Departmental Consulting Archeologist (DCA), who is responsible for making an investigation within 48 hours to determine the importance of the resource, and to define appropriate mitigation measures

- Consultation, as needed, with the Illinois State Historic Preservation Officer (SHPO), DARCOM, National Park Service (Midwestern Regional Office, Lincoln, Nebraska), and the Keeper of the National Register, will be accomplished by the DCA or the DCA's designee

- If the site is evaluated as being important by the DCA or the DCA's designee, the Department of the Army is responsible for implementation and funding of the mitigation measures

6.2.3 A Summary of Recommended Management Directions and Priorities for Effective Compliance and Program Development

In order to comply with both long-range historic preservation planning needs, and requirements for evaluating the effect of specific proposed development projects on significant archeological resources, we recommend the following management activities. These are listed in their recommended order of priority:

- Consultation with the Illinois State Historic Preservation Office (SHPO) about the recommendations in this overview and plan

- Project-specific survey of the 237 acres of undisturbed lands in the 280-acre tank driving range that will soon be subject to a new federal undertaking, and evaluation of the significance of any archeological resources on them; appropriate treatment of any resources judged to be significant

6.3 ESTIMATED SCOPE OF WORK AND COST LEVELS FOR PRESENTLY IDENTIFIABLE MANAGEMENT NEEDS

6.3.1 Scope of Work

The estimated scope of work recommended here is to provide the oral and archival historic evaluation of identified historic archeological resources at the St. Louis ASC to determine (in consultation with the SHPO) their significance. Because the extent of subsequent field investigations (a testing program or additional surface reconnaissance) is recommended to be a function of the historic evaluation and consultation process, no scope of work or cost levels are provided for such field efforts.

The milestones for the recommended work would be:

- Completion of Part I, a preliminary draft report on the archival review and field survey of 237 undisturbed acres in the tank driving range; estimated to require 120 work hours

- Completion of DARCOM review of the preliminary draft Part I, as documented by a letter accepting the preliminary draft as appropriate for interagency consultation

- Completion of consultation (including both DARCOM representatives and the historical/archeological consultants) with the Illinois SHPO about the Part I research and evaluations, as documented in a letter of concurrence from the SHPO; estimated to require 40 consultant hours

- Completion of a report that includes the draft Part I and a draft Part II documenting the consultation process and including the statement of SHPO concurrence; estimated to require 60 consultant hours

- DARCOM review and acceptance of the report including both Parts I and II, and provision of the final report to the Illinois SHPO.

6.3.2 Implementation and Cost Estimates

Personnel needed for completion of the above-outlined tasks need professional expertise in survey archeology. The archeological professional qualifications should meet the standards of the U. S. Department of the Interior (1983), and the staff should include adequate historical archival and geomorphological/soils expertise. The individual(s) making the archeological resource evaluations of significance should be skilled in management and compliance procedures, have a thorough understanding of regional historical and archeological needs and goals, and have field and/or laboratory experience in the area.

The archeologist should be supported by adequate secretarial/drafting personnel as needed to complete a final report. The physical plant administering implementation of the project should have adequate word processing and duplication capability to quickly and professionally prepare needed documents and correspondence.

Costs of professional archival expertise, including all necessary travel (using expertise local to each of the Washington, DC, and Illinois archival research areas), reference, telecommunications, data management, search fee, and report preparation costs generally average from $25 to $30 per work-hour, and from $20 to $25 per work-hour for reconnaissance survey, across the country. These rates do not include business fee or profit, general and administrative costs, or inflation costs, and are expressed in 1985 dollars. At this rate, the 100 hours of professional time estimated for archival, consultation, and reporting activities for the recommended scope of work would have a baseline cost ranging from $2500 to $3000 in FY84 dollars, while the survey work of 120 hours would have a baseline cost between $2400 and $3000. Total costs would range between $4900 and $6000.

7.0
SUMMARY

As a manager of public lands, the St. Louis Army Support Center has responsibilities for the management of the natural and cultural resources held on those lands for the general benefit of the American people. This report documents the lack of known archeological resources on the ASC and the potential that significant prehistoric and historic sites are there, and recommends procedures to identify and if appropriate manage such resources.

Construction of a new 280-acre tank driving range is planned at the ASC, and work on it has already been initiated. An archival study and field survey of 237 undisturbed acres within this parcel is recommended.

Compilation of information on which to base a "negative declaration" of the presence of significant historic properties on the facility, or completion of a Historic Preservation Plan based on the historic architectural and archeological survey of the facility, would provide the basis for an affirmative cultural resource management program appropriate to a land-managing agency whose fundamental mission is support for America's military.

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